Marine Safety Investigation Unit

Transport Malta

SAFETY INVESTIGATION REPORT

201606/034 REPORT NO.: 15/2017 June 2017

This safety investigation has been conducted with the assistance and cooperation of the Transport Accident and Incident Investigation Bureau of Latvia.

MT *GIANNUTRI*
Crew member fatality following a fall into an empty cargo oil tank at a shipyard in Riga, Latvia 21 June 2016

SUMMARY

On the 21 June 2016, *Giannutri* was requested by the shipyard to perform extra cleaning in cargo oil tank (COT) no. 2 port in preparation for extensive hot works necessary to replace several steel structures.

The extra cleaning in COT no. 2 port was assigned to an OS and two painters. An AB joined later. None of the personnel who were assigned this work was involved in the 'toolbox' meeting.

After the afternoon coffee break, the OS and the AB assigned to work in the COT made their way, to the main deck in preparation to access the COT.

During the entry into the COT, the OS fell a height of about 14.0 m, from the top ladder down to the COT tank top, sustaining fatal injuries.

The MSIU has issued one recommendation to the Company designed to address risk on board by understanding the way crew members conduct tasks assigned to them.

MT *Giannutri*

FACTUAL INFORMATION

Vessel

Giannutri, a 23,235 gt oil tanker was built in 2004 and was registered in Malta. She was owned by Tenacity Shipping Limited, managed by Interorient Marine Services (Germany) GMBH & Co. KG, Hamburg and was classed with DNV GL. *Giannutri* had an overall length of 182.55 m, a moulded breadth of 27.34 m and a moulded depth of 16.70 m. The vessel had a summer draught of 11.217 m, corresponding to a summer deadweight of 37,299 tonnes.

The oil tanker was fitted with 12 cargo oil tanks, arranged in six pairs on port and starboard, with transverse and centreline corrugated bulkheads. The longitudinal frames were exposed on the main deck, while transverse webs were fitted underneath the main deck. The ballast tanks were fitted within the vessel's double hull.

Propulsive power was provided by a 6-cylinder B&W 6S50MC-C, slow speed, single acting, direct drive diesel engine producing 9466 kW at 127 rpm. This drove a single fixed pitch propeller to reach a service speed of 15 knots.

Crew

Giannutri's Minimum Safe Manning Certificate required a crew of 14. At the time of the accident, the vessel had a crew complement of 22, who were all Latvian nationals. The crew compliment included the master, chief mate and chief engineer, two OOW (deck), and four engineers. The deck ratings included a bosun, pump man, three able seamen (ABs) and two ordinary seamen (OS). To assist with the planned repairs, there were also two painters on board.

The fatally injured OS was 25 years old. No information was provided on when the crew member joined the vessel, however, the MSIU is aware that this was his second contract as an OS with the Company, having previously sailed as a deck cadet with another company. As an OS, he was not a watchkeeper and was deployed on day work.

Environment

Scattered showers were experienced during the day. In the afternoon, just before the accident, it started to rain heavily. The Northwesterly wind was force 3 and the air temperature was 22 °C. The sea temperature was recorded at 18 °C. The vessel was safely berthed in sheltered waters. It was relatively dark inside the COT at the time of the accident.

Narrative

Giannutri arrived in almost lightship condition in Riga on 05 June 2016. She was moored starboard side alongside a conventional berth for planned repairs and dry docking. Works were being carried out 24/7 by crew members and contractors.

On the 21 June 2016, the vessel was requested by the shipyard to perform extra cleaning in cargo oil tank (COT) no. 2 port in preparation for extensive hot works necessary to replace several steel structures. A 'toolbox' meeting was carried out, attended by the ship's superintendent and the senior management of the ship, *i.e.*, the master, chief mate, chief engineer, and the second engineer.

The extra cleaning in COT no. 2 port was assigned to an OS and two painters. None of the personnel assigned this work, was involved in the 'toolbox' meeting.

An unannounced alcohol test was also performed to all crew members prior to the commencement of works. After the alcohol tests and just before lunch, the two painters entered COT no. 2 port to apply chemicals to the bottom of the COT. Following completion of this operation, the two painters re-entered COT no. 2 port together with the OS after lunch and remained in the COT

until 1500, when they all went out for a coffee break.

The two painters returned to COT no. 2 port at 1545. In the meantime, after finishing his coffee break at 1530, the OS asked one of the ABs, who was keeping the 1200 - 1600 watch at the starboard gangway, to assist him in the mopping of COT no. 2 port when his watch was over. They agreed that the OS would relieve the AB at the gangway watch while the latter went for a break. The AB was back on deck at 1552. The gangway watch was taken over by another AB who was to remain on duty until 2000.

By now, heavy rain was pouring. Rather than making their way to COT no. 2 port, the OS and the 1200 - 1600 AB proceeded to take shelter in the starboard deck store, forward of the manifold. After a few minutes, at approximately 1603, with the rain having subsided slightly, the OS quickly made his way across the deck towards COT no. 2 port and hurriedly disappeared down, behind the tank coaming (Figure 1).

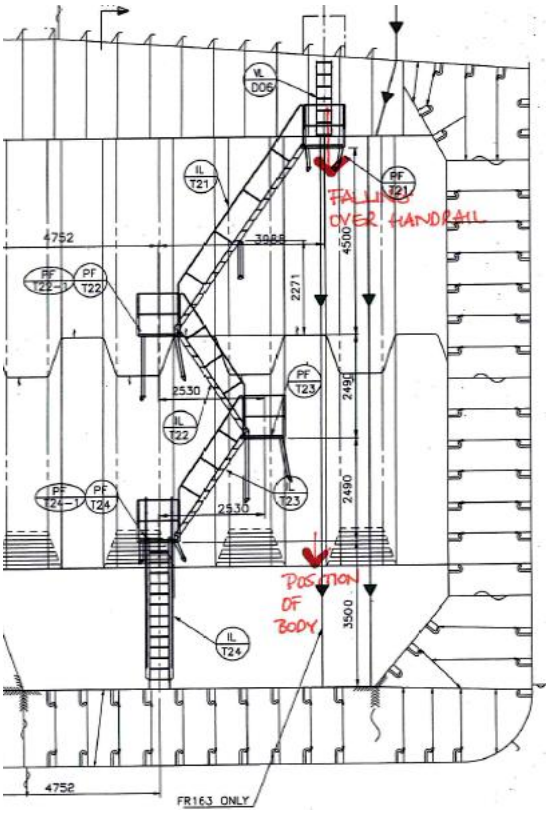

Figure 1: Transverse section and access to the COT

The AB followed the OS just a few moments later. By the time he looked down the coaming, he could just make out what appeared to be the OS falling over the handrail (Figure 2).

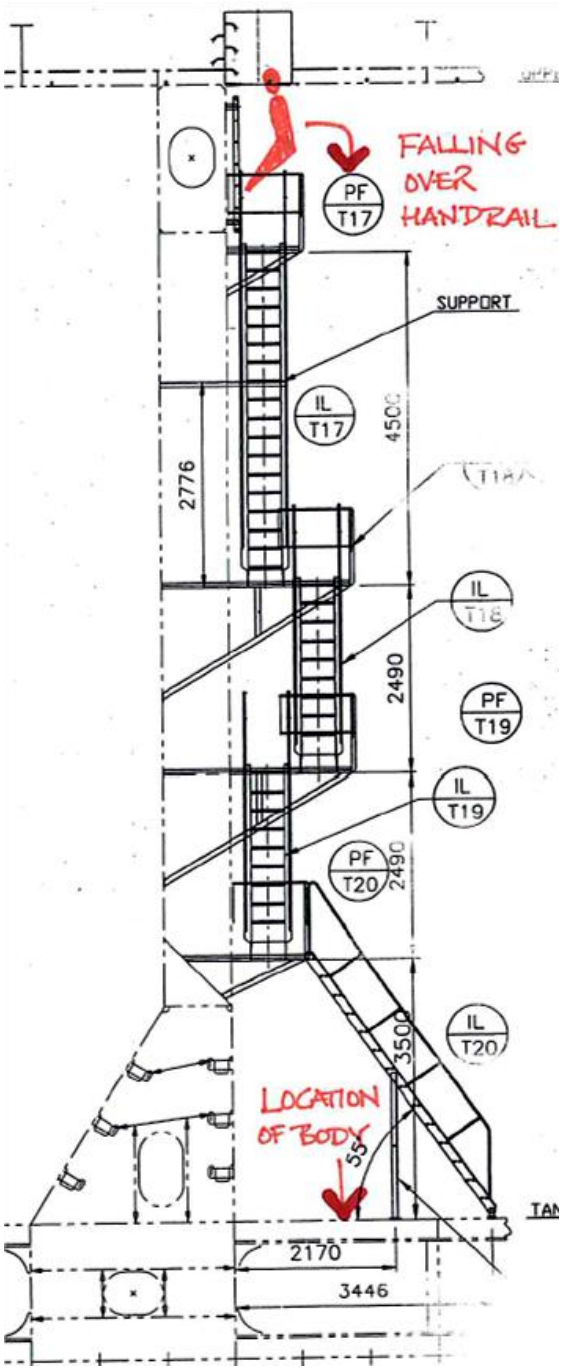

Figure 2: Sketch of the accident

Indeed, the OS had fallen from a height of about 14 m, down to the bottom of COT no. 2 port. The AB raised the alarm, and while one of the painters exited the COT

(also to raise the alarm), the other painter remained with the OS inside the COT. The crew members were mustered and a rescue team was dispatched to COT no. 2 port. The shipyard, agent, and ship managers were also notified. Shore medical assistance was requested and an ambulance with a medical team arrived by 1622. Following the necessary examinations, the OS was pronounced dead by the shore medical team at 1637.

Cause of death

The autopsy confirmed that the cause of death were injuries compatible with a fall from a height. It also confirmed that there were no traces of alcohol or narcotics in the body.

ANALYSIS

Aim

The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, and to prevent further marine casualties or incidents from occurring in the future.

Cooperation

During the course of this safety investigation, MSIU received all the necessary assistance and cooperation from the Transport Accident and Incident Investigation Bureau of Latvia.

Fatigue

The records of hours of work and rest of the deceased OS showed that on 21 June 2016, *i.e.*, the day of the accident, he had been on duty for seven hours. These were preceded by a period of 12 hours of rest. The records for the month of June showed that the hours of work of the deceased OS varied between 10.5 hours and 14 hours.

This safety investigation did not identify anything in the behaviour of the OS which would have indicated that fatigue was a contributing factor to his fatality.

Task inside the COT

The day had started with a 'toolbox' meeting for the senior ranks. As for the other two personnel assigned to work in COT no. 2 port, the OS was not part of the 'toolbox' meeting. Nonetheless, the 'toolbox' meeting only discussed the coordination of the day's work. The COT entry procedure and the weather changes expected during the day were not discussed. It would appear that the entry inside a COT was not deemed as a critical task, even perhaps due to this being perceived as part of the routine on board a tanker inside a shipyard.

The OS had already entered COT no. 2 port earlier during the same afternoon. Other personnel had also entered the same COT. Indeed, prior to the accident, a total of seven entries were made into COT no. 2 port, including one by the same OS. All were completed safely. The OS would have been confident that he had a good and clear understanding of the work environment and of the work instructions. There was no doubt for the MSIU that as a young OS performing a task related to hot works on an oil tanker, and where his work would be scrutinised, his goal would have been to perform well.

The OS would have expected the entry into COT no. 2 port to be no different from the other entries, which he had made about three hours earlier. At the time, and in that context, that reasoning made perfect sense as there was no perception of anything unsafe in repeating what had already been done safely a few hours before! This was perhaps an expectancy bias, which was not addressed, despite the change in weather conditions that contributed to a change in the way the final entry into COT no. 2 port was negotiated.

An evolving context

The sudden heavy rain pour created a complex context that brought with it a conscious and sensible reaction to take shelter, followed by a decision process to determine how best to confront the situation. This was a basic need that demanded to be addressed urgently, and thus grabbed the attention of both the OS and the AB. They had to assess the environment for any relevant information, filter it to from a coherent understanding of the circumstantial situation, and then project a path towards attaining their objective.

Although there was heavy rainfall, there was a task to carry out and complete in COT no. 2 port. One option, which the crew members had, was to stay sheltered in the starboard deck store. Another option was to proceed to COT no. 2 port just across the deck, and climb down into it where they would also have taken shelter while at the same time conduct their task. The option which they have taken was of course the one which made sense to them at the time, *i.e.*, proceed to COT no. 2 port without getting wet more than necessary. This solution would have probably made sense to most other seafarers!

It is also likely that the value they put on performing the task they were assigned to do, biased their appreciation of the changing dynamics in making the COT entry. Some conditions, such as adjustment of vision to the light conditions inside the COT, and the ladder down the coaming, remained unchanged. It appeared that the OS focused intently on rapidly getting into the COT. It was not excluded that he was optimistic about his ability to mitigate the new situation. However, it has to be appreciated that the OS may have also filtered out the appreciation of the risk associated with doing so in wet conditions, which were not identical conditions to those experienced earlier.

Studies suggest that the opportunities which are perceived to manage risk will actually have an effect on the subsequent actions taken by an individual. It is interesting to note that this does not necessarily mean that it reflects a personal characteristic or trait of an individual; rather, it is a response to the evolving context.

It would appear to the safety investigation that after all, the situation may have been seen as benign, in which case, it would also have been a key factor in the decision to access the COT. Under such circumstances (which, after all, was only accessing a COT and climb down a ladder), there was no perceived threat and the situation was seen as manageable and within control.

Once the context made sense to him, the OS had no reason to delay his entry into the COT. Had there been no accident, his actions would not have been any different from previous COT entries. It would have only been the benefit of hindsight which would have potentially led to a revised COT entry action.

CONCLUSIONS

1. The immediate cause of death was serious injuries compatible with a fall from a height;
2. The COT entry procedure and the expected changes in the weather conditions during the day were not discussed;
3. The entry inside a COT was not deemed as a critical item, even perhaps due to it being perceived as part of the routine on board a tanker inside a shipyard;
4. Considering the numerous (successful) earlier entries inside the COT, the OS would have been confident that he had a good and clear understanding of the work environment and of the work instructions;

5. The successful earlier entries inside the COT may have created an expectancy bias, which was not addressed, despite the change in weather conditions that contributed to a change in the way the final entry into COT no. 2 port was negotiated;
6. The value they put on performing the task they were assigned to do, biased their appreciation of the changing dynamics in making the COT entry;
7. The situation may have been seen as one which was of no threat, manageable and within control.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION[1]

Following the accident, the Company carried out an internal investigation and took the following safety actions:

- Toolbox meetings are to be attended by senior ranks and personnel / crew members assigned to carry out the actual work;
- Forecast changes in the conditions which affect risk, need to be addressed during toolbox meetings.

RECOMMENDATIONS

Interorient Marine Services (Germany) is recommended to:

15/2017_R1 carry out regular observations on board as part of their proactive safety management in order to analyse, understand and address how crew members carry out tasks on board.

[1] **Safety actions and recommendations should not create a presumption of blame and / or liability.**

SHIP PARTICULARS	
Vessel Name:	*Giannutri*
Flag:	Malta
Classification Society:	DNV GL
IMO Number:	9286047
Type:	Oil Tanker
Registered Owner:	Tenacity Shipping Ltd.
Managers:	Interorient Marine Services (Germany) GMBH & Co. KG
Construction:	Steel
Length Overall:	182.55 m
Registered Length:	176.08 m
Gross Tonnage:	23235
Minimum Safe Manning:	14
Authorised Cargo:	Liquid in Bulk

VOYAGE PARTICULARS	
Port of Departure:	Flushing, UK
Port of Arrival:	Riga, Latvia
Type of Voyage:	International
Cargo Information:	In ballast
Manning:	22

MARINE OCCURRENCE INFORMATION	
Date and Time:	21 June 2016 at 16:03 (LT)
Classification of Occurrence:	Very Serious Marine Casualty
Location of Occurrence:	Riga Shipyard, Latvia
Place on Board	Cargo tank
Injuries / Fatalities:	One fatality
Damage / Environmental Impact:	None reported
Ship Operation:	Under repairs
Voyage Segment:	Arrival
External & Internal Environment:	Scattered showers. Northwesterly wind was force 3 and the air temperature was 22 °C. The sea temperature was recorded at 18 °C. Relatively dark inside the COT
Persons on board:	22